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# Current Trends in Project Management

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**Abstract:** Project complexity keeps increasing and under the global economy circumstances the conditions for project implementation are more and more complicated. This change forces organizations to adapt to the new conditions by improving their internal processes, including consistent application of the new trends of project management. The use of modern trends in project management shows a growing trend in many organizations. Success in the globalized environment and maintenance of a sustainable competitive edge is only possible when the company utilizes agile approaches in project management, and risk management methods according to ISO 31000 assisted by modern software tools. The necessity of knowledge of new trends in project management is the first step to their successful implementation. The purpose of the paper is to introduce some of the current trends in project management. These include the utilization of agile project management methods, project risk management according to ISO 31000, and gaining knowledge of the software products used in the Czech Republic in the context of the IPMA (International Project Management Association) point of view.

**Keywords:** project management; agile; risk management; software; IPMA; certification

**JEL Classification:** D81; M11; M15

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## 1. Introduction

Agile project management is based on the Agile Manifesto. The originators were IT developers, or software project authors, who considered current development ineffective. Agile methods soon began to expand to other areas. The effort to improve project development brought about many changes. In the beginning, the customer does not know what they will need for the project, or their requirements change over time. That is why changes should not be suppressed but rather flexibly responded to with quick solutions. (Šochová & Kunc, 2014)

A project is usually commenced by the sponsor's definition of the objective, the budget, and the schedule (deadline). In the case of agile management rather the opposite is true. Agile project management often begins with a rough idea and the requirements are amended with changes over time. For that reason, the scope of costs and time must be defined beforehand. (Doležal et al., 2016)

Today's global world with increasing competition not only among the traditionally advanced countries but also originating from developing countries makes not only the business but also the public sphere motivated to innovate and improvement of products and services. Competition causes quick marketing of new products, and the supply of complex solutions meeting customer needs, with the risk of high penalties for delays and target parameter nonconformities. The ever-more and more quickly changing environment requires

flexible reactions, identification of potential risks and insecurities and their active control. (Korecký & Trkovský, 2011). The risk management system, its principles, and guidelines are generally described in the ČSN ISO:31000 standard of 2010. The standard describes the systematic process of risk identification, analysis, and effectively addressing and can be applied in any organization, area, or on any level (Korecký & Trkovský, 2011). The standard was revised and updated in 2018 and currently is still only available in its English language version. This second edition repeals and replaces the first edition ISO 31000:2010 by its technical revision. The revised 31000:2018 standard has been used by international experts in risk management. The vital assumptions of successful business enterprising, like activities of governmental authorities and self-governing bodies, include risk control. Integration of risk management in corporate governance is seen as an inevitable part of organizations' competitiveness.

Project management uses general mathematical and statistical instruments and graphic methods and techniques whose survey and ways of use in project management are defined in the individual chapters focusing on planning and control pursuant to the project plan (Svozilová, 2016). It needs to be realized that such software will always be a mere instrument, support for the implemented system, but never a miraculous solution removing all problems. (Doležal, Máchal, & Lacko, 2012)

The main goal of the paper is to introduce some of the current trends in project management and discuss their role in current project management approaches in the context of the IPMA (International Project Management Association) point of view.

## 2. Methodology

The paper is based on the analysis of keywords in the context of current project management trends.

In the first step, keywords relevant to the issue of Project Management were determined in the context of experience with project management courses at universities in the Czech Republic and abroad in accordance with the study of materials from the organizations dealing with project management IPMA and PMI (Project Management Institute). The analyzed keywords were:

- Project management;
- Agile;
- Risk management;
- Software;
- IPMA;
- Certification.

In the second step, records of selected keywords in the Google Scholar, Scopus, and Web of Science (Core Collection) databases were analyzed. Occurrence within Open Access approaches was also considered.

The third step was to summarize the results of the keyword analysis in clear tables.

The fourth step is a discussion based on the views of selected authors in the context of current project management trends.

In the conclusion of the paper, the author comments on current trends from the IPMA point of view.

### 3. Results

The main results of the paper are based on keyword analyses. The Google Scholar database served as a baseline for creating the keyword analysis.

Table 1. Number of records in the Google Scholar database

Keywords	Records in database
Project management	8,420,000
Software	7,290,000
Risk management	5,700,000
Certification	2,840,000
Agile	1,150,000
IPMA	41,900

Table 2. Number of records in Scopus and Web of Science databases

Keywords	All / Open Access	Records in Scopus database	Records in WoS database
Software	All	1,730,273	918,129
	All Open Access	411	265
	Gold	162	140
	Gold-Hybrid	32	24
Risk management	All	731,928	583,848
	All Open Access	233	239
	Gold	92	116
	Gold-Hybrid	23	26
Project management	All	368,283	175,688
	All Open Access	72	52
	Gold	28	27
	Gold-Hybrid	7	6
Certification	All	9,958	53,366
	All Open Access	20	14,390
	Gold	6	5,960
	Gold-Hybrid	2	1,644
Agile	All	39,907	24,495
	All Open Access	8,608	6,334
	Gold	3	2
	Gold- Hybrid	975	888
IPMA	All	1,672	1,595
	All Open Access	323	430
	Gold	107	136
	Gold-Hybrid	15	16

The keyword Project Management (n = 8,420,000) dominates within the Google Scholar database. Subsequently, the keywords Software (n = 7,290,000), Risk management (n = 5,700,000) and Agile (n = 1,150,000) appear. As expected, the keyword IPMA had the lowest occurrence (n = 41,900). On the other hand, the appearance of the word Agile was somewhat unexpected.

Subsequently, keywords in the Scopus and Web of Science databases were analyzed. For these databases, the type of access was also considered (all papers vs. Open Access). Open Access was also divided into subcategories (All Open Access, Gold, and Gold-Hybrid).

The results show that the number of records of the analyzed keywords in professional databases was not as frequent as in the Google Scholar database. When comparing the number of records in the Scopus database and the Web of Science database, we can say that the number of records in the Scopus database is higher than the number of records in the Web of Science database. The only exception was the occurrence of the keyword IPMA within Open Access approaches. Here, the number of records in the Web of Science database was slightly higher than in the Scopus database.

## 4. Discussion

### 4.1. Agile Project Management

Šochová and Kuncce (2014) state that agile management is dynamic, quick, interactive, adaptive, iterative, entertaining, playful, quickly responding to changes, etc. It is another way of project management, with preferences for other values, such as real outcomes to strict processes, and change to pre-planned progress. To be agile means to follow the agile philosophy. This brings about a different corporate culture and structure.

### 4.2. Agile Approaches

To prepare a high-standard project plan there are two basic required factors, high-standard processing and knowledge of technology. If these two basic conditions are not fulfilled then planning makes no sense and the project cannot be used. In such case agile project management enters the stage.

The agile approach requires change both on the customer side and on the supplier side, but unless the whole process is supervised by an experienced team with sufficient knowledge and experience it often fails. This approach is correct in cases when an accurate specification of the required project is available. With sufficient technical knowledge and historic experience in similar projects use of agile approaches can be assumed to be correct. At the same time, project changes must be expected, of course not so substantial to change the project scope.

There are also cases in which the following phenomena occur:

- The project is innovative and there are no established and tried planning processes.
- The client is only able to provide a rough project specification, not sufficient for financial and temporal estimates.

- A large number of changes in the course of the project implementation can be expected, with an effect on the whole project's progress and scope (most often after implementation of the previous two steps)

Agile approaches are mainly applied when the customer comes with new requirements for project function improvement all the time. These processes were first developed in the IT field for the improvement and development of new applications. (Doležal et al., 2016)

The decisive aspects are represented by the principles applied in connection with these approaches:

- Incremental supplies

The project is divided into parts that are implemented one by one, in stages. The project team devotes themselves to one part of the project and only when it is completed they move on to the next part. This minimizes the volume of work in progress and permits following the increase of the completed project parts.

- Iterative approach

Project work is again divided into stages characterized by the same length. Project products must be divided into increments permitting their deliveries within the same deadlines, within a fixed "time box" (Doležal et al., 2016).

- Multi-functional teams

Due to limited time and observance of delivery deadlines of the individual project parts close cooperation among individual team members with different expertise and specializations, is needed.

- Customer involvement

If any changes in the project are expected it is necessary to periodically inform the customer and consult the changes with them to gain feedback from the customer. Under agile process management, a customer introducing the specification and after a couple of months of passivity taking over the finished project is an inappropriate model.

- Periodic revision of requirements

In the case of agile projects, the initial specification is often incomplete and inaccurate, which is why consultation of the requirements between the customer and the project team is important to timely grasp all potential changes and new requirements.

- "Agile conduct"

This mainly addresses the structure of the agile team, the necessity of intra-team cooperation, and task delegation. (Doležal et al., 2016)

#### 4.3. SCRUM

The methodology called Scrum development process (hereinafter just "Scrum") is one of the most commonly used agile methodologies. According to Šochová and Kunc (2014) is

Scrum defined as a “Process building on teamwork, customer involvement, regular feedback in short sprints. Scrum is currently one of the most commonly used agile methodologies. “

The methodology is built on self-organizing teams. In Scrum work is specified in backlogs. There are two types of backlogs:

- Sprint Backlog = work the team agreed to complete within the current iteration (sprint). These tasks only represent internal practices of the development team.
- Product Backlog = a list of high-priority items the Product Owner wants to have, developed and sorted by priority, with a defined work tempo.

Scrum defines three key roles of the development team, using various new names for the existing functions. According to Cobb (2015), scrum works best for teams with up to 9 developers. Each team member has his/her predefined role. There are three main roles in scrum:

- Scrum Master (Manager),
- Product Owner,
- Scrum Team (the development team).

Scrum Master is not the team leader in the traditional sense for his powers do not include control over the team. Scrum master is responsible for the correct use of the scrum methodology in agile software development. Scrum master is the intermediary between the team and the owner. He or she organizes meetings and assures that the team members complete the defined processes within the defined deadlines. A different opinion is held by Šochová and Kuncce (2014): “ *The team coach and moderator. Removing obstacles and taking care of the team development and functioning. Keeping the scrum running. Scrum master is not the team manager.* “ this the scrum master helps maximize the value created by the scrum team.

Product owner is the customer representative responsible for the project run and management of its progress. The product owner is the link between the scrum team and the customer. Product owner is selected by the scrum master, the customer and the management. According to Šochová and Kuncce (2014) “The owner of the product vision. Product owner defines that needs to be done in the product or the area. Product owner specifies task priority on the basis of contact and discussions with the customer. “One of the most important subjects responsible for product value maximization and work of the whole team. Product owner holds a clear product vision, takes key decisions and is responsible for product vision creation.

The Scrum team or the development team is the project drive. The team consists of multiple individuals with individual tasks. The team consists of experts able to manage design, implementation, and testing. Multi-functionality of team members and repeating work is used for goal achievement.

#### 4.4. Risk

The definition of risk has its history. A brief summary of its historic development can be found in Tichý (2006), who sees the roots of the word in Arabic, Latin and Greek. The Arabic word *risq* meant a random positive result, the Latin *riscum* referred to the dangers of water

transport represented by coral cliffs. The Greek derivate of the Arabic risq was connected with both negative and positive events or outcomes. Later history of the risk concept in 17th to 20th centuries ranged around its connection with negative results only. According to the present definitions risk generally means danger of occurrence of damage, loss or destruction or failed business. There is no single established definition of the risk concept. Economic and technical literature defines risk as a probable loss suffered by the risk bearer, expressed in monetary or other units. (Tichý, 2006). One of the many problems of the current risk science is the fact that we are unable to classify or categorize the danger of risk occurrence in any universal system. We are able to do that within a branch or within an organization only. (Hnilica, 2009).

Risk is often seen as danger of a loss occurrence. (Smejkal & Rais, 2013) point out that the theory of finance usually defines risk as volatility of a financial quantity (profit, portfolio value etc.) around an expected value as a consequence of multiple parameter changes. There is no single generally accepted definition of risk.

Project risk is any event that may occur and affect the project with a certain probability and a certain impact. Talking about risk one usually means negative impact on the project in question. But there are also risks with positive impact. These are called not risks but opportunities, though. (Smejkal & Rais, 2013) The other approach sees risk in its positive context. Risk can mean a threat or an opportunity, i.e. if the event defining the risk occurs the project objectives may be threatened or the event may positively affect the project objectives. Project management tends to work with both sides of risk and analyses both threats ad opportunities (PMI, 2017).

#### *4.5. Project Risk Management According to ISO 31000*

Risk and opportunity management is a continuous process present across all stages of project life from the initial idea to the project completion. (Doležal, Máchal, & Lacko, 2012). For a project, risk means "uncertainty which may negatively or positively affect fulfillment of the project objectives". (Schwalbe, 2011)

The purpose of risk management is risk mapping, description of their causes and impacts according to the cause – risk – effect model (Korecký & Trkovský, 2011). Risk management is a substantial part of effective project management for every project is exposed to risk. Duly managed projects are the successful ones. (Hillson, 2009) Risk management process includes risk prevention by decisions about measures for their minimization – preventive measures serve for risk prevention, including insurance and reserve formation.

The risk management process consists of four main stages:

- Risk identification,
- Risk quantification – including quantitative as well as qualitative analysis,
- Risk response development,
- Risk monitoring and response control.

These steps include the first step of risk recognition, followed by risk analysis and assessment, preparation of the response plan, risk monitoring and operative control throughout the project implementation period. A more accurate description is included in

ISO 31000 standard, where this process is extended with context specification, risk analysis, assessment, communication and consultation throughout the process. Risk may occur by deviation from the expected results and always affects achievement of the defined objectives. ČSN ISO 31000 standard simply describes risk as the “effect or uncertainty on objective achievement” (ČSN ISO 31000). Even though project management has been used in practice for decades, project risks have only been systematically addressed since 1980s, first just in the form of quantitative risk analysis. (Merna & Al-Thani, 2007)

#### *4.6. Software Support for Project Management*

New technologies perform a significant role in many areas of human activity today. Computer hardware, software and networks or utilization of interdisciplinary and global teams have radically changed the work environment (Schwalbe, 2011).

The software tools will be classified by function pursuant to Czibor (2009) as lower-medium- and higher-class instruments.

- Lower-class instruments

These tools only perform the basic project management functions and their price is usually CZK 4,000 per user or even less. They are recommended for small projects and individual users. Representatives of this class include for example Microsoft Excel or Microsoft Access.

- Medium-class instruments

These instruments over the lower-class tool can manage larger projects and simultaneous work of multiple users on multiple projects. All these instruments can create Gantt diagrams and network diagrams and help with critical path analysis, resource allocations, monitoring progress of project works, issue of status reports etc. The prices range between CZK 4,000 and 10,000 per user. The most commonly used software tools of this class include Microsoft Project, Artemis, PlanView, Primavera or Welcom.

- Higher-class instruments

The top category of software tools for project management is represented by premium products, sometimes called software for corporate project management. Licenses for these products are usually sold according to the number of users, the products are integrated in database software on the corporate level and are also accessible over Internet. An example may be VPMi Enterprise Online. (Czibor, 2009):

#### *4.7. International Project Management Association Point of View*

It needs to be realized that such software will always be a mere instrument, support for the implemented system, but never a miraculous solution removing all problems. (Doležal, Máchal, & Lacko, 2012). The International Project Management Association (IPMA) focuses on the candidate personality. In the Czech Republic the most widespread certificates include IPMA and PMI. IPMA distinguished between four certification levels identified as A to D. Each level represents an increasing level of knowledge and experience of project manager,



which conditions the certificate obtaining. Levels A-C require passing a written knowledge test on the given experience level, an oral interview and a defined minimum required practical experience in the field. For D level passing the corresponding written test is sufficient. (IPMA, 2015).

In 2015 the competence distribution, known as "competence eye" was amended and extended in the context of issue of the new standard ICB v4 (IPMA, 2015). The amendment concerned project, program and portfolio management and the aim was to reflect project management requirements for individual competences corresponding to the project, portfolio or program context. A new main area classification: Perspective, People and Practice, was introduced. Prospective competences relate to the general model of the needed competences, through which the individual responds to the environment. Human competences are to reflect the areas of personal and social themes. Practical competences combine skills, instruments and specific methods. (IPMA, 2015). This means classification into three main areas (Perspective, People and Practice).

## 5. Conclusion

Use of new methods in project management shows a growing trend in many organizations. With the help of the knowledge of project management methods and instruments included in the standards and methodologies (of project management) it is possible to succeed in the globalized environment and keep a sustainable competitive edge. The necessity of trend study in project management is the first step to successful implementation of these principles in corporate governance. Use of modern tools and methods of project management facilitated by suitable software instruments brings many benefits to the organization as well as the individual stakeholders. The probability of fulfillment of project objectives is also increased (Svozilová, 2016), resources are used effectively and needs of individual stakeholders are met more readily (IPMA, 2015).

All standards and methodologies (PMBok, PRINCE 2 and ICB) provide for and promote the possibility of project manager certification. The certification applies to individuals and particular persons or organization-related functions, such as ISO 9000. There is also certification offering application to both individuals and organizations, PRINCE 2. Certificates of PRINCE 2 and the Project Management Institute (PMI) are issued on the basis of passed tests where the applicant proves knowledge of the relevant standard.

Even though the methods of competence development may differ methodology by methodology, what can be generally recommended is to follow modern trends in project management and continuously develop competences of project managers, whether by way of certification or self-education.

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